



## Target Audiences for Water Education

### *Selected Findings<sup>1</sup>*

#### **Outreach design recommendations**

A key activity for the Water Outreach Project was to improve our information about strategic audiences. We wanted to know how research could help us identify:

- Relevant audiences
- Information or skills needed by each audience;
- The outreach strategy that works with each audience;
- Why the outreach strategy works;
- What data other research had already collected and published about the needs and interests of the target audience.

The research meta-analysis identified research for fourteen audiences, plus one study of University employees in a particular community that we categorized as the “adult” audience, for lack of a better general term. The number of studies we identified for each audience can be found in the following table.

We identified the study-specific Best Education Practices (BEPs) for each study, and then compiled them **for a particular audience** according to outreach design themes. We also summarized BEP recommendations **across all studies** by outreach design theme. Sorting according to the outreach design themes allowed us to investigate the applicability of each theme to water education needs, and to draw general conclusions about research needs of strategic relevance to water educators.

Outreach design themes used to sort research findings are:

- Audience information;
- Message content;
- Message delivery vehicle;
- Outreach strategy;
- Public participation;
- Supporting and motivating professionals;
- Evaluation.

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<sup>1</sup> The complete report, *Outreach That Makes a Difference. Target Audiences for Water Education – A Research Meta-Analysis*, is available on-line at <http://wateroutreach.uwex.edu/beps/MAcoverTOC.cfm>.

*Target audiences for Water Education – descriptions and number of studies*

Audience	Studies		Description
	No	%	
Adults	1	1.0%	All people ages 20 and up. This is a catch-all group.
Aquaculture business	1	1.0%	Individuals who use various technologies for raising fish and shellfish for sale
Business/ Industry water users	5	5.1%	Managers and staff members who have control over services and processes that use water either directly or indirectly in a way which may change water supply or quality
Decision-makers, local	2	2.0%	People who provide recognized leadership in the community whether in elected, appointed, salaried, or volunteer positions
Ethnic groups* (2 also summarized under farmers; 1 also summarized under recreational water users)	4	4.0%	A population from a specific ethnic or cultural group
Farmers	37	37.0%	People who work on the land to grow and produce food, animal feed, or other consumer products; and business professionals who support agricultural production
Government agency/ University Extension professionals	3	3.0%	Planners and outreach educators who work for government or a land grant university and lead water-related outreach initiatives with groups
Homeowners	5	5.1%	People who have ownership and responsibility for care and maintenance of property on which their home is located
Households	8	8.1%	Personal space of individuals and families
Landowners	10	10.1%	People who own property and use it for residential, recreational, forestry, or agricultural purposes. People who work the land, such as farmers or loggers, are described as separate target audiences.
Loggers	2	2.0%	People who are employed in the commercial logging industry
Recreational water users	7	7.1%	Adults and youth who engage in fishing, boating, and other recreational activities on or near bodies of water
Students, higher education	2	2.0%	Students engaged in post-secondary, formal education
Students, K-12	4	4.0%	Youth engaged in formal, elementary and secondary education programs
Teachers	8	8.1%	Professionals who provide a structured education experience for youth at the elementary and secondary education levels
*TOTAL (with 3 counted twice)	99	100%	

**Outreach That Makes a Difference.**

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A study conducted for the National Extension Water Outreach Project based upon work supported by the Cooperative State Research, Education, and Extension Service (CSREES), U.S. Department of Agriculture, under Agreement No. 00-51130-9714, and by the University of Wisconsin Cooperative Extension.

## Sample Research Summary for a Target Audience – **Landowners**

<http://wateroutreach.uwex.edu/beps/landowner.cfm>

### Landowner Audience Description

People who own property and use it for residential, recreational, forestry, or agricultural purposes. People who work the land, such as farmers or loggers, are described as separate target audiences.

### Study-Specific BEPs

These study-specific BEPs distill findings derived from the studies listed in Supporting References, which were identified using a meta-analysis technique. BEPs are described by one or more of seven focus areas.

Outreach Design	Landowner Research Recommendations
The Audience	<ul style="list-style-type: none"><li>• In landowner or renter situations:<ul style="list-style-type: none"><li>◦ Determine which role is primarily responsible for water quality or conservation decisions</li><li>◦ Identify factors that may influence the person who could take action</li><li>◦ Understand "opportunity costs" and social norms relative to the content or practice focus of the outreach</li></ul></li><li>• Identify characteristics of landowners that could influence interest in conservation practices</li><li>• Match the information technology delivery mechanism to the computer work style of the landowner. How does the landowner already use the computer?</li></ul>
Message content	<ul style="list-style-type: none"><li>• Keep the message simple</li><li>• Include information that shows how the message affects landowners personally and what specific actions landowners can take to improve the situation</li><li>• Acknowledge landowner interest and concern for the quality of their land</li><li>• Be aware of the boundary between education and advocacy</li><li>• Emphasize local elements of control</li><li>• Link conservation, stewardship, and watershed topics to a particular place on the owner's land</li><li>• Provide clear information about goals and plans for land parcels</li><li>• Provide regular feedback about how well goals and plans have been achieved</li></ul>
Message delivery vehicle	<ul style="list-style-type: none"><li>• Provide agriculture landowners with written materials in addition to whatever other communication methods are selected</li><li>• Trusted individuals can deliver messages effectively</li></ul>
Outreach strategy	<ul style="list-style-type: none"><li>• Base your program design on specifically identified needs</li><li>• Base the outreach or education process on mutual understanding, trust, and respect that leads landowners to choose to comply because they see it in their best interest</li><li>• Emphasize an "integrated" program that provides a continuum of</li></ul>

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Outreach Design	Landowner Research Recommendations
	information, communication, and education resources <ul style="list-style-type: none"> <li>• Engage audience in planning</li> <li>• Tap into indigenous knowledge of local land stewards, especially since recommended, best-bet practices may have uncertain results in local application</li> <li>• Use a variety of outreach methods, with each targeted at specific, desired behaviors</li> <li>• Plan for the time it takes to adopt new ideas</li> <li>• Be aware of the boundary between education and advocacy</li> <li>• Be aware of the larger political issues and contexts in which water quality outreach and education take place (such as legislative requirements).               <ul style="list-style-type: none"> <li>○ Identify and communicate potential areas for measurable change</li> <li>○ Emphasize local elements of control</li> </ul> </li> </ul>
Public participation	<ul style="list-style-type: none"> <li>• Create opportunities to build landowner participation in the activities of landowner groups</li> <li>• Provide groups with training to help develop leadership and organization skills</li> </ul>
Supporting and motivating professionals	No research available
Evaluation	<ul style="list-style-type: none"> <li>• Make time for continuous evaluation in order to best determine next steps</li> <li>• Provide clear information about goals and plans</li> <li>• Provide regular feedback about how well goals and plans have been achieved</li> </ul>

### Linking Study-Specific BEPs to *Essential BEPs*

The Water Outreach Web site provides examples for which *Essential BEPs* are highlighted by research about **landowners** as a target audience. *Essential BEPs* provide an overview of Best Education Practices derived from education theory and other meta-analysis studies. A list of *Essential BEPs* is available on the Water Outreach website.

### Supporting References

- Cobourn, J., & Donaldson, S. (1997). Reaching a new audience. *Journal of Extension*, 35(1), 5.
- Constance, D. H., Rikoon, S. J., & Ma, J. C. (1996). Landlord involvement in environmental decision-making on rented Missouri cropland: Pesticide use and water quality issues. *Rural Sociology*, 61(4), 577-605.
- Curtis, A., & DeLacy, T. (1995). Evaluating landcare groups in Australia: How they facilitate partnerships between agencies, community groups, and researchers. *Journal of Soil and Water Conservation*, 50(1), 15-20.
- Force, D., & Bills, N. (1989). Participation in the CRP: Implications of the New York experience. *Journal of Soil and Water Conservation*, 44(5), 512-516.
- Howell, J. L., & Habron, G. B. (2004). Agricultural landowners' lack of preference for Internet Extension. *Journal of Extension*, 42(6), 10.

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- Johnson, S. E., & Jacobs, H. M. (1994). Public education for growth management: Lessons from Wisconsin's farmland preservation program. *Journal of Soil and Water Conservation*, 49(4), 333-338.
- Newton, B. J. (2001). Environmental education and outreach: Experiences of a federal agency. *BioScience*, 51(4), 297-299.
- Ransley, L. (2003). The outreach continuum: Moving participants from information to action. Paper presented at the Nonpoint Source Pollution Information and Education Programs, Chicago, IL.
- Voege, H., & Wagner, N. (1997). How do forest landowners learn? A study of resource agency/landowner interaction in northern California. Sacramento: Prepared for the California Department of Forestry and Fire Protection by The Training Source.
- Wolf, A. T. (1995). Rural nonpoint source pollution control in Wisconsin: The limits of a voluntary program? *Water Resources Bulletin*, 31(6), 1009-1022.

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## Audience Information

### Research areas:

Development and use of information about a target audience:

- Determination of audience interests and needs
- Use of audience information

In general, the studies recommended that natural resource and outreach professionals determine the interests and needs of their specific audiences and how they will use that information in planning their outreach and education programs. These recommendations provide educators with a starting point for understanding audiences. They also provide multiple models for what questions to ask and how to gather this information.

### *Principal findings across all studies: Audience Information*

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

## Audience Information – Findings grouped by category

### Audience Information

#### 1) Determination of audience interests and needs

- Create “involvement structures” (such as a Board) that are place-specific
- Assess:
  - Audience concern
  - Culturally-specific or group-specific interests and preferences
  - Preferences for receiving information
  - Preferred training methods
  - Knowledge and skills
  - Direct experience with the information or technique
- To gauge opinion, use direct surveys instead of relying on stakeholders

#### 2) Use of audience information

- Gauge opinions at an early stage of planning
- Link new information to what people know already
- Assure that the outreach program is relevant to specific audience abilities and needs
- Pay attention to unique factors of cultural groups
  - Individual and socio-economic characteristics, especially as they relate to the proposed activity
  - Local issues and context that may affect priorities

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## ***Message content***

Research areas:

Research about what information to provide:

- Specific content to convey
- Content frame or perspective

Studies provided general recommendations for the content of education and outreach messages. Study findings also suggested characteristics for more effective messages. Five of the seven characteristics are commonly recommended, but may not be always observed. The following two recommended message characteristics are relatively new additions to this body of knowledge:

- Message **content** should be tailored to address specific audience *circumstances*
- Message **content** should be holistic, i.e., it should address attitudes, knowledge, intentions, *and* behaviors – as opposed to some subset of these

*Principal findings across all studies: Message Content*

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

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### **Message Content – Findings grouped by category**

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#### **Message content**

##### 1) Specific content to convey

- Announcement of an initiatives
- Cost savings or improved economic benefit
- Ease of doing the right thing
- Locally specific information about environmental risks and benefits from behavior change
- The exact nature of the problem; what information is important to know and why
- Explicit instructions about what to do
- Feedback about benefits that resulted from behavior change
- An atmosphere of social pressure and that people can do more

##### 2) Content frame or perspective

- Tailored to address specific audience circumstances
  - Easy to understand
  - From a trusted source
  - Scientifically valid
  - Balanced
  - Up-to-date
  - Holistic and addressing: attitudes, knowledge, intentions, behaviors
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## ***Message delivery vehicle***

Research areas:

Research about how to effectively convey information to the target audience:

- Communication system for message delivery

Studies recommend five different vehicles for effectively transmitting intended messages to target audiences. They provide a useful checklist to consider when developing an outreach program.

*Principal finding across all studies: Message Delivery Vehicle*

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

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### **Message Delivery Vehicle – Findings grouped by category**

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#### **Message vehicle**

- 1) Deliver through what communication system
    - Already existing relationships and networks
    - Audience preferred and/or credible sources of information
    - Print version in addition to other preferred sources of information
    - One-on-one communication
    - Trained personnel
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## ***Outreach strategy***

Research areas:

Research about how to provide education that leads to measurable impacts.

We grouped the large number of findings for this theme into two major subthemes: outreach design and outreach implementation. We selected the subthemes and their further divisions based on previous work to outline standard elements of success for this theme (see the Water Outreach website, National Extension Water Outreach Education. 2004b).

The outreach design subtheme includes recommendations for:

- Enhancing the quality and stability of outreach strategies,
- Accessing the target audience,
- Involving the target audience in the program design,
- Adapting outreach programs to meet the needs of particular topics and target audiences, and encouraging the involvement of individuals from the target audience. This final component is also addressed by the message content and delivery vehicle themes.

The outreach implementation subtheme includes extensive suggestions for how to choose and apply relevant instructional strategies.

We also expected to find research about managing outreach initiatives and recognizing program contributors. We considered these important elements of building a long-term outreach initiative. However, we did not find any studies that addressed these areas of outreach implementation.

## **Outreach Strategy – Findings grouped by category DESIGN**

### **1) Outreach design**

#### **a. Quality – provide a clear purpose; pilot test**

- Be aware of the boundary between education and advocacy
- Provide training with a clear goal and an explicit set of objectives geared toward the needs of a target audience.
- Develop program design and content that:
  - Supports, engages in, and makes use of the scientific, social, educational, and other forms of research that have a bearing on programs
  - Recognizes the critical role and need to adequately support ongoing professional development for all personnel
- Attend to *Best Practice* recommendations for: program development and implementation, professional development for teachers/youth leaders, and program evaluation available from several sources

#### **b. Stability – frequent opportunities sustained over time**

- Emphasize company commitment to pollution prevention activities and investment of adequate time and money.
- Allow enough time for wide spread adoption of the demonstrated BMPs.
- Emphasize an "integrated" program that provides a continuum of information, communication, and education resources
- To produce long-term changes in behavior:
  - Provide continued application and reinforcement of content
  - View the behavior-change process as one that takes place over an expanse of time, in a combination of formal and non-formal settings, within the context of a supportive social environment
- Develop program design and content that constitutes a continuous and lifelong process for individuals, families, and diverse social groups

#### **c. Access – inclusive, accessible, all interested audiences can participate**

- Develop program design and content to follow the principles of inclusion with regard to program participation by minorities and people with disabilities
- Use two-way communication methods, particularly one-on-one contact, where possible.
- Use multiple channels of communication.
- Be patient in your efforts to reach small businesses; small businesses have limited staff, busy schedules, and financial constraints, and may not take time to return phone calls or read mailed solicitations.
- Link policy makers with local information sources
- Work with farm consultants:
  - Recognize and support education providers already in place who provide information consistent with the program goal
  - Train the technical professionals who support the target audience as well as specifically training the target audience about the new practice
  - Provide the farmer with the opportunity for continuous dialog with consultant.
- Use participatory, watershed-based planning as an effective technique for building public awareness and interagency coordination.

#### **d. Connection – involve stakeholders and partners**

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## Outreach Strategy – Findings grouped by category

### DESIGN

- Involve target audience in:
  - Choosing and testing preferred technical approaches to solving a problem
  - Developing content and process for outreach activities
  - Participatory approaches to help identify target audience education needs and motivate participation
- Develop program design and content to:
  - Provide participants with opportunities to engage in the valuing process (i.e., choosing, affirming, and acting) as it relates to programs, program activities, and their own growth and development
  - Build upon local, state, and national partnerships to support the development, implementation, and evaluation of programs as well as to support stewardship of the resource
- Base the outreach or education process on mutual understanding, trust, and respect
- Identify and provide additional support for group-designated water "experts"
- Include community members, essential service operators, environmental health workers, administrators, teachers, and regional service providers in community water conservation training programs.
- Design partnership development training to build understanding and skills. Focus on factors influencing success:
  - Maintain balance between partnership resources and scope of activity
  - Pursue flexible and informal process
  - Attend to alternative dispute resolution (ADR) processes
  - Attend to institution analysis and development (IAD) processes
- Support stakeholder engagement more fully by anticipating a political dimension in addition to a focus on subject matter. Be aware of the larger political issues and contexts in which water quality outreach and education take place.

#### **e. Program – adapted to particular audience or topic needs**

- Base program design on specifically identified needs
- Design programs to:
  - Target outcomes for specific audiences
  - Focus on a geographic area
  - Use a variety of outreach methods, with each targeted at specific, desired behaviors
- Develop program design and content to consider aquatic resources in their totality, including natural, built, technological, and social aspects (e.g. economics, politics, cultural-historical, moral, aesthetic)
- Assure that programs are relevant to the cultural milieu of the subgroup, such as ethnic or culturally-related farm-structure differences.
- Emphasize one-on-one contact but couple with small group and demonstration events
- Recognize the role of economic factors in behavior change
- Recognize the limits of regulation in producing behavior change
- Look to these farm conditions for opportunities to provide education that is more likely to be effective:
  - Actions that improve water quality also increase profitability
  - The producers' own water quality is at stake
  - The on-farm cost of water quality impairments are shown to be sufficiently large
  - Education is accompanied by training for management skills of immediate need to the producer
- Link farm education to production decisions to reflect the fact that operators prefer to make production decisions based on their own records and advice from on-farm employees.
- Focus programs designed to facilitate adoption of precision farming techniques on farmers, who:
  - Are relatively economically secure
  - Place importance on use of conservation information when making farm-level decisions

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## Outreach Strategy – Findings grouped by category

### DESIGN

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- Perceive that their children will be operating their farms in the future
- For sustainable agriculture education, target families with one or more of these characteristics:
  - Kin-mentor relationship that supports practice of sustainable agriculture
  - An environmental or health problem which triggers interest or motivation
  - Systematic on-farm experimentation
  - Value for prudence with resources.
- In designing outreach programs that strive to *link environmental concern with recreational behaviors* vary program goals to reflect differences in commitment among experienced and active anglers, ex anglers, inactive anglers, and non anglers
- Educate teachers about innovations in curricula to ensure that they are implemented
- Encourage and support teacher use of a community-based curriculum based on water monitoring.

#### **f. Marketing – how audiences know about the opportunity**

- If providing explanatory materials by mail to residents from communities engaged in watershed planning, find ways to encourage individuals to engage.
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## Outreach Strategy – Findings grouped by category IMPLEMENTATION

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### 2) Outreach implementation

#### a. Management – to assure smooth operation

No research findings

#### b. Relevant instructional strategies

- Feel confident about choosing to communicate through major public media and education campaigns because, if properly conducted, they can have a demonstrable effect on attitudes, knowledge, behavior intentions, and behavior change.
  - Develop program design and content so that program:
    - Is learner-centered
    - Begins with goals and objectives that relate to appreciation and awareness, expands to include both knowledge and skills, and culminates in personal responsibility and responsible behavior
    - Relies on a variety of systematic and continuous approaches to the assessment of participants and evaluation of programs so as to improve and eventually validate those programs
  - “Test” the audience at the beginning of the workshop to improve instructor ability to enhance subsequent learning
  - Design programs to:
    - Provide direct experience relevant to the objective
    - Provide authentic experience, similar to what the participant will experience in their personal life
    - Provide an opportunity to practice the target behavior
    - Enable students to demonstrate mastery through a public presentation
    - Provide learning opportunities before and after the field activities to optimize knowledge gain
  - Design outreach to address farmer preferred learning style
    - Emphasize experiential learning and farmer knowledge
    - Provide farmers with opportunities to *solve a problem* in addition to providing other standard hands-on outreach techniques such as opportunities for talking with specialists, field days, demonstrations, etc.
    - When training new farmers, focus on problem-solving and production agriculture skill development
  - Provide strategies and practice for differentiating objective information sources from biased information sources
  - Provide the following when focusing on environmentally responsible behavior:
    - An opportunity to demonstrate a commitment.
    - A demonstration or model of desired action.
    - An opportunity to set goals or respond to goals, including use of prompts.
    - Feedback on progress toward preferred environmental change.
    - Comprehensive training in the set of variables correlated with measurable changes in environmentally-related behavior, including:
      - environmental sensitivity
      - knowledge about ecology
      - in-depth understanding of aquatic environmental issues
      - a sense of personal investment in specific environmental issues
      - knowledge of environmental action strategies
      - skills in using environmental action strategies
      - an internal locus of control
      - intentions to act
  - To increase ownership and empowerment, design programs with a strong emphasis on:
    - Combining: a) field activities; b) curriculum activities; c) family and community involvement
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- Multiple methods to introduce specific concepts. Repeat concepts throughout the education experience
- Use farm assessments:
  - Work one-on-one with the farmer completing the assessment.
  - Encourage farmers to complete their own on-farm risk assessments rather than performing the assessment for them
- Use simulation games to help increase participant flexibility in making choices
- Design training to provide students with work in teams on a practical experience with interdisciplinary participants
- Structure activities at a field site in order to increase knowledge gain, but apply structured activity with care in order to avoid reducing motivation
- Encourage teachers to include the following elements in their environmental education programs:
  - Flexible curriculum
  - Collaborative learning environments
  - Students' bearing the consequences of the behavior
  - Teacher competency in listening and questioning
  - Diverse instructional strategies
  - Resourcefulness in accessing resources
  - Creativity, especially in knowledge of how to do without,
  - Facilitation skills
  - Ability to make connections
  - Understanding of local-to-global connections
  - Ability to integrate curricula
  - Using personal/student strengths/passions
  - Experiential teaching orientation
  - Cooperative and inclusive learning
  - Nurturing a sense of place

### **c. Recognition of contributors**

No research findings

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## ***Public participation***

### **Research areas:**

Research about how participation in environmental decision-making contributes to measurable change:

- When to use
- What type to use in a given context

This appears to be an emerging area of importance to outreach educators.<sup>2</sup> It merits more research attention. The four studies that addressed this theme identified specific water outreach and education objectives that can be facilitated by public participation.

### ***Principal findings across all studies: Public Participation***

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

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#### **Public Participation – Findings grouped by category**

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##### **Public participation**

###### **1) When to use**

- To develop planning goals
  - As a vehicle to make data available
  - To develop data
  - To build participation in groups that effectively address areas of concern
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<sup>2</sup> The need for attention to the role of public participation in environmental decision-making is demonstrated by USDA strategic goals summarized in the introduction to this Monograph. New studies show a connection between public participation processes, environmental decision-making, and making change in the community. These are summarized, in part, by Andrews, Stevens & Wise (2002), but more recent work about public participation techniques has yet to be integrated into outreach and education approaches. (For example, see Renn, Webler & Wiedemann, 1995).

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## ***Supporting/motivating professionals***

### **Research areas:**

Research about how to help professionals to be more effective in water education work:

- How to support professionals
- Impacts

Professional effectiveness is clearly an important component for reaching water management goals through education. The principle findings identify some purposes and effects of supporting and motivating professionals. This merits more research attention.

*Principal findings across all studies: **Supporting and Motivating Professionals***

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

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### **Supporting and Motivating Professionals – Findings grouped by category**

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#### **Support and motivate professionals**

##### **1) Purpose and impacts**

- To increase likelihood of program implementation
  - To assure that professionals
    - Understand concepts
    - Feel supported by the organization
    - Can choose to participate
  - Provide professionals with
    - Help in integrating topic into their work
    - Hands-on training
    - An opportunity to practice application
  - Related skills
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## ***Evaluation***

### Research areas:

Research about how to develop and use evaluation to improve the quality of water outreach:

- What to measure
- How to use results

### *Principal findings across all studies: Evaluation*

<http://wateroutreach.uwex.edu/beps/documents/Metaanalysisresults.pdf>

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## **Evaluation – Findings grouped by category**

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### **Evaluation**

#### 1) What to measure

- Measure changes
  - Physical environmental factors
  - Demand
- Continuous assessment

#### 2) How to use results

- Provide feedback to target audience on a regular basis
  - Keep records of specific outreach activities, especially to assess the relationship between specific activities and their outcomes
  - Use evaluation outcomes to determine next steps
  - Reasons and consequences for outcomes
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Outreach That Makes a Difference.

Target Audiences for Water Education – A Research Meta-Analysis.

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